Merenkulkulaitos

TIEDOTUSLEHTI nro 11/15.7.2002

ALUSTEN POLTTOAINEPUTKISTOJA KOSKEVAT LISÄVAATIMUKSET

SOLAS-yleissopimuksen muutokset

Ihmishengen turvallisuudesta merellä 1974 tehtyä kansainvälistä yleissopimusta on muutettu Kansainvälisen merenkulkujärjestön (IMO) meriturvallisuuskomitean päätöslauselmalla MSC.31(63) siten, että yleissopimuksen II-2 luvun sääntöön 15 on lisätty polttoaineputkistoja koskevat uudet kohdat 2.9 - 2.12 (liite 1).

Kohdan 2.12 mukaan kaikkien ennen 1.7.1998 rakennettujen kansainvälisessä liikenteessä olevien alusten on täytettävä kohtien 2.9 - 2.11 vaatimukset viimeistään 1.7.2003. Aluksissa, joiden koneteho on 375 kW tai vähemmän ja joiden polttoaineruiskutuspumput syöttävät useampaa kuin yhtä ruiskutussuutinta, voidaan käyttää sopivaa kotelointia vaihtoehtona kohdan 2.9 mukaiselle kaksoisseinäiselle putkistolle.

IMO on julkaissut ohjeen (MSC/Circ.647) "Guidelines to minimize leakages from flammable liquid systems". Ohjeesta julkaistaan oheisena (liite 2) SOLAS-yleissopimuksen sääntökohtia II-2/15.2.9 - 15.2.11 koskevat ohjeet.

Polttoaineputkistojen tarkastukset

Matkustaja-alusten polttoaineputkistot tarkastaa Merenkulkulaitoksen teknisen toimiston katsastaja yhdessä alueellisen merenkuluntarkastustoimiston katsastajan kanssa ja tarkastuksesta annetaan erillinen todistus. Laivanisännän on tilattava tarkastus Merenkulkulaitoksen teknisestä toimistosta.

Lastialusten polttoaineputkistot tarkastetaan normaalin vuosikatsastuksen yhteydessä ja tarkastuksesta tehdään maininta katsastuspöytäkirjaan.

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LIITE 1

SOLAS-yleissopimus II-2/15.2.9 - 15.2.12
IMO Resolution MSC.31(63)

Regulation 15 - Arrangements for oil fuel, lubricating oil and other flammable oils

(Paragraphs 2.9 to 2.12 of this regulation apply to all ships)

2.9 All external high-pressure fuel delivery lines between the high-pressure fuel pumps and fuel injectors shall be protected with a jacketed piping system capable of containing fuel from a high-pressure line failure. A jacketed pipe incorporates an outer pipe into which the high-pressure fuel pipe is placed, forming a permanent assembly. The jacketed piping system shall include a means for collection of leakages and arrangements shall be provided for an alarm to be given of a fuel line failure.

2.10 All surfaces with temperatures above 220°C which may be impinged as a result of a fuel system failure shall be properly insulated.

2.11 Oil fuel lines shall be screened or otherwise suitably protected to avoid, as far as practicable, oil spray or oil leakages onto hot surfaces, into machinery air intakes, or other sources of ignition. The number of joints in such piping systems shall be kept to a minimum.

2.12 Ships constructed before 1 July 1998 shall comply with the requirements of paragraphs 2.9 to 2.11 not later than 1 July 2003, except that a suitable enclosure on engines having an output of 375 kW or less having fuel injection pumps serving more than one injector may be used as an alternative to the jacketed piping system in paragraph 2.9.

LIITE 2

IMO MSC/Circ. 647 "Guidelines to minimize leakages from flammable liquid systems"
SOLAS-yleissopimuksen sääntökohtia II-2/15.2.9-15.2.11 koskevat ohjeet

Appendix 4 - Jacketed High Pressure Fuel Lines

1 Scope

SOLAS regulation II-2/15.2.9 requires all external high pressure fuel delivery lines between the high pressure fuel pumps and fuel injectors to be protected with a jacketed piping system capable of containing fuel from a high pressure line failure. A jacketed pipe incorporates an outer pipe into which the high pressure fuel pipe is placed forming a permanent assembly. The jacketed piping system is to include a means for collection of leakages and arrangements are to be provided for an alarm to be given of a fuel line failure. Regulation II-2/15.2.12 will require existing ships to retrofit engines having an output greater than 375 kW.

2 Design

Two systems have been successfully used in meeting this requirement, namely, rigid sheathed fuel pipe and flexible sheathed fuel pipe. In either case the sheathing is to fully enclose the pipe and is to resist penetration by a fine spray or jet of oil from a failure in the pipe during service. Also the annular space and drainage arrangements should be sufficient to ensure that in the event of complete fracture of the internal pipe, an excessive build up of pressure cannot occur and cause rupture of the sheath. The suitability of such pipes should be demonstrated by prototype testing. The drainage arrangement should prevent contamination of lubricating oil by fuel oil.

3 Inspection and maintenance

Regardless of the system selected, little additional maintenance or periodic inspection is required to keep the jacketed fuel lines in proper working order. However, jacketed pipes should be inspected regularly and any drainage arrangement which may have been disconnected for maintenance purposes should be refitted on completion of the task.

Appendix 7 - Insulation

1 Scope

SOLAS regulations II-2/15.2.10, II-2/15.3 and II-2/15.4 require that all surfaces with temperatures above 220°C (430°F), which may be impinged as a result of a fuel oil, lubricating oil and other flammable oil system failure be properly insulated. This appendix provides guidance to comply with these regulations.

2 Purpose

Insulation of hot surfaces is primarily to reduce the risk of fire by reducing temperatures of surfaces below the auto-ignition temperature of oil fuel, lubricating oil or other flammable oils.

3 Installation

Manufacturers' instructions should be followed if available. Permanent insulation should be used to the greatest extent possible. Insulation should be provided with readily removable sections to allow access for normal maintenance. Where the insulation used is oil absorbent or may permit the penetration of oil, the insulation should be encased in steel sheathing or equivalent material.

4 Inspection and maintenance

A regular check of equipment should be made to confirm that the insulation is in place. When maintenance or repair to equipment has been carried out, checks should be made to ensure that the insulation covering the heated surfaces has been properly replaced.

Appendix 3 - Spray Shields

1 Scope

SOLAS regulations II-2/15.2.11, II-2/15.3 and II-2/15.4, require oil fuel, lubricating oil and other flammable oil piping to be screened or otherwise suitably protected to avoid as far as practicable oil spray. This appendix provides guidance to comply with these regulations.

2 Application

Spray shields are intended for use around flanged joints, flanged bonnets and any other flanged connection in oil pressure systems which are located above the floor plates and which have no insulation in way of the joints. The purpose of spray shields is to prevent the impingement of leaked or sprayed flammable liquid onto a hot surface or other source of ignition. (Refer to appendix 7, guidance for insulation of hot surfaces.)

3 Design

Many types of spray shields are possible and they need not necessarily be attached to the joint, or totally enclose the joint. An example of a spray shield which provides a total enclosure is given in figure 3.1. This spray shield is designed to wrap completely around the joint and is long enough to provide an overlap equal to one-quarter of the joint's circumference. The shield is wrapped around the sides of the flange far enough to cover the heads of the bolts. The finished width is equal to or exceeds "A+B+A". The shield is laced tightly with wire and the overlap is pointed away from potential ignition sources.

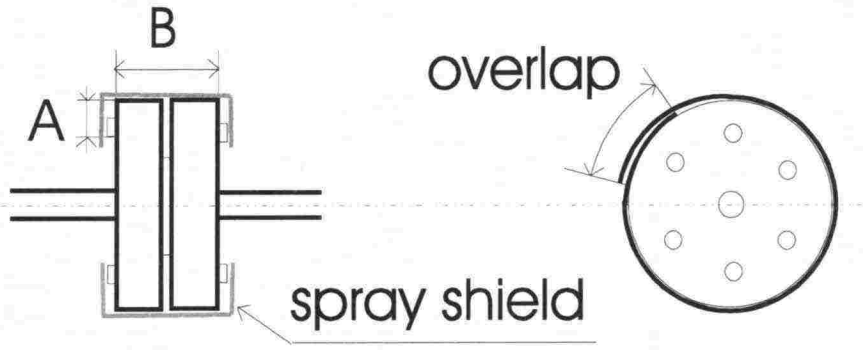

Fig 3.1

4 Inspection and maintenance

Spray shields should be inspected regularly for their integrity and any which have been removed for maintenance purposes should be refitted on completion of the task.